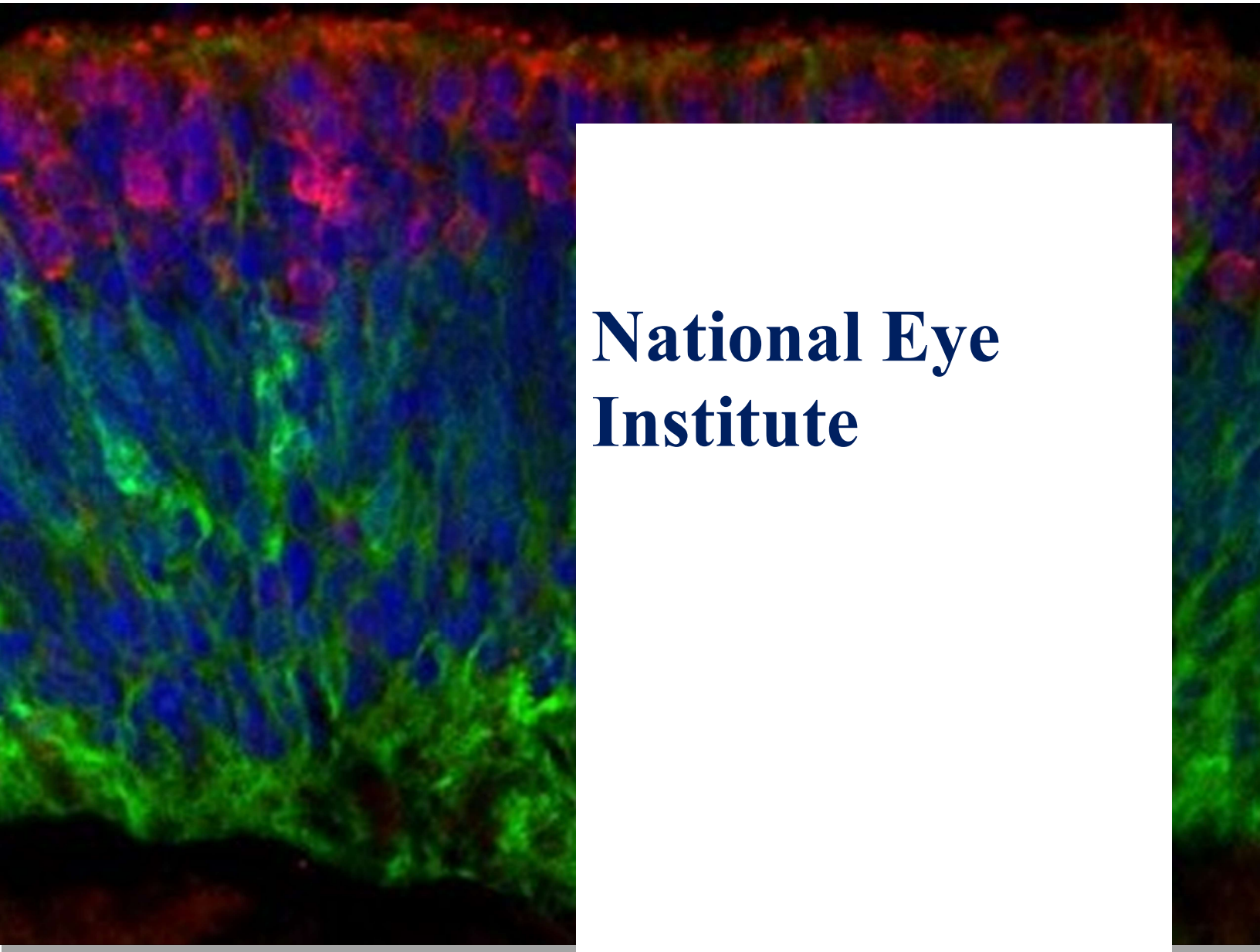

National Eye Institute

CONGRESSIONAL JUSTIFICATION
FY 2024

Department of Health and Human Services
National Institutes of Health

National Eye Institute

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Eye Institute (NEI)

FY 2024 Budget Table of Contents

General Notes

1. FY 2023 Enacted levels cited in this document include the effects of the FY 2023 HIV/AIDS transfer, as shown in the Amounts Available for Obligation table.
2. Detail in this document may not sum to the subtotals and totals due to rounding.

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Director's Overview

Michael F. Chiang, M.D., Director

Eye diseases that lead to vision loss and blindness, such as age-related macular degeneration (AMD), diabetic retinopathy (DR), cataracts, and glaucoma, affect millions of Americans of all ages, ethnicities, and backgrounds. These and other forms of vision impairment restrict career choices and can impact people's mobility and independence. As the population ages, virtually all Americans will develop a visual problem. NEI supports vision research through approximately 1,800 research grants and training awards made to scientists at more than 270 medical centers, hospitals, and universities across 44 states and around the world. NEI also conducts laboratory and patient-oriented clinical research at its facilities in Maryland.

Vision for the Future

Growing a mini-retina in a dish for disease modeling and drug screening, using a patient's own cells to create their personalized stem-cell therapy for eye disease, applying artificial intelligence (AI) to standard-practice imaging to diagnose eye disease at early stages and predict non-ocular health risks such as risk of heart attack, stroke, and neurodegenerative conditions: the future of vision research has arrived, as these recent advances demonstrate. In the year since releasing a new strategic plan,[1] NEI has been developing initiatives aligned with seven cross-cutting Areas of Emphasis. The plan builds on strengths of vision research developing novel methods for imaging, data science, and stem cell therapies that can be leveraged in other areas of medicine. The NEI Plan also surveyed the needs of the vision community to identify and address gaps in knowledge.

The eye is unique. The front is transparent, exquisitely evolved to focus light on the light-sensing neurons of the back of the eye called the retina, which is part of the central nervous system. Ocular imaging devices capture incredible amounts of data from patients and can be used not just for disease diagnosis but to track progression and response to therapy over the course of years. Newly developed data management and sharing practices are accelerating advances in vision, neuroscience, and other fields. Data Science, one of seven Areas of Emphasis in the NEI Plan, highlights the challenges and opportunities possible if researchers can plan experiments with data sharing in mind, but it has also positioned vision research at the forefront of AI innovation in risk prediction for detecting eye diseases. Recently adopted eye imaging technologies, particularly optical coherence tomography (OCT), a noninvasive technique that uses light waves to create high resolution pictures, are providing insights into principles used to improve robotics and self-driving cars. The eye can also reveal clues to other aspects of individual's health. Using OCT, clinicians can diagnose and monitor Alzheimer's disease. Recent studies have shown that in less than five minutes, scientists pairing standard-practice eye imaging with applications utilizing AI models can both identify individuals who are

[1] https://www.nei.nih.gov/about/strategic-planning

at risk of stroke within five years and predict heart attacks. These separate models demonstrate the future of clinical diagnoses. NEI also plays a leading role in the NIH Bridge2AI program, which recently committed $130 million to accelerating the use of AI in the biomedical community by creating AI-ready data sets from existing NIH research, that can now be used for additional benefit.

Images and data science are not the only way vision research is contributing to the understanding of human health and disease. NEI researchers used 3D tissue bioprinting to develop a novel model of the blood-retina-barrier, a unique tissue structure that helps block immune cells and certain molecules in the blood from entering the central nervous system. This model can be used to screen compounds to inhibit Zika virus as it has been shown that the cells of the blood-retina barrier are a primary target for Zika infection. Scientists showed that proteins found in tears can be used as biomarkers to diagnose a range of diseases. Tear-fluid based diagnosis does not require a blood draw or other more invasive procedures and can present results of over 3,000 proteins indicating a variety of diseases in one hour. This technique could allow primary care physicians to screen more readily for diseases, catching them earlier when treatments are more effective.

Progress in preventing and treating many forms of childhood eye disease like retinopathy-of-prematurity has dramatically reduced childhood blindness in the past few decades.[2] However, a developmental brain-based disorder has been growing into a leading cause of vision impairment in children. Cerebral (cortical) visual impairment (CVI) is associated with injury such as stroke in an infant around the time of birth. Depending on the location of damage and the stage of brain development at the time of injury, CVI manifestation can vary substantially across individuals. For children with CVI, the inability of the brain to process visual information often leads to inability to interpret what they see, resulting in what some call swirling masses of color and light. In less severe cases, children can focus on objects in their visual field, but cannot process what the object is. Unfortunately, inadequate clinician awareness of the condition often leads to incorrect or incomplete diagnosis. NEI is fostering collaborations between clinicians, researchers, educators, children, and their families to educate clinicians and other stakeholders, to stimulate new CVI research and to develop appropriate brain-based vision rehabilitation protocols—one of the key priorities highlighted in the NEI Plan for Individual Quality of Life. NEI is taking an important first step creating a CVI registry, a resource that will enable researchers to compare different manifestations of CVI in children.

The NEI Audacious Goals Initiative to restore vision through regeneration of neurons in the eye has propelled the field of regenerative medicine. In nearly 10 years, major advances include the first clinical trial for patient-derived stem cell therapy in the U.S. to repair dying cells in AMD, development of new tools to image function of populations of neurons over time, cultivation of animal models of human eye diseases to test new therapies, and new factors to allow certain neurons from the eye to grow to the brain past the point of damage in the optic nerve. While this progress is exciting, NEI is starting to tackle a major hurdle for the success of stem-cell based transplantation therapies: the immune response, which can attack new cells as foreign invaders. To kick off an initiative on transplant immunology, NEI recently hosted a workshop identifying barriers to transplanting cell therapies in the eye and propose possible strategies to overcome

[2] www.iapb.org/news/blindness-in-children-declining-magnitude-over-time/

them. In a new initiative, NEI will leverage new tools developed in the NIH Common Fund Extacellular RNA Communication (ExRNA) Initiative. The ExRNA initiative focuses on advancing understanding of extracellular vesicles which are small bubbles secreted by cells that carry RNA and protein fragments that transfer messages between cells. These extracellular vesicles, also called exosomes, have the potential to be used as therapeutic agents or drug delivery tools.

In the two decades following the Human Genome Project, hundreds of genes associated with eye diseases have been discovered, but it is now time to link those genes to mechanisms and develop therapies. In myopia (nearsightedness), the eyeball is elongated such that light does not focus on the retina, leading to blurry vision. Large studies identified over 200 genes involved in the "epidemic" of myopia, but no specific genes have been able to account for the exponential rise in incidence, suggesting environmental factors intersect with genetic risks. During the pandemic, many students schooling from home had huge increases in screen time. NEI is partnering with the National Academies of Sciences, Engineering, and Medicine to focus efforts on understanding the Cellular Mechanisms Of Refractive Errors (C-MORE). Researchers have recently developed wearable sensors to understand how behavioral factors including time spent outdoors in bright sunlight, sleep, and screen time impact the development of myopia.

Vision for all People

The pursuit of knowledge and advancing understanding of vision health is a noble endeavor but falls short if it does not help all the people who may benefit. The burden of vision loss is borne disproportionately by individuals who don't or can't access needed care that might prevent or treat eye disease. For example, a leading cause of impairment, unoperated cataract—cloudiness in the eye lens—can be reversed with a 15-minute surgical extraction. In a new initiative, NEI is partnering with the National Institute of Minority Health and Health Disparities (NIMHD) to host a workshop identifying areas where epidemiological, behavioral and social science research can identify and reduce vision disparities. To achieve its mission of eliminating vision loss and improving quality of life through research, NEI is investing in health disparities research to understand barriers to health equity and public health. Black populations are disproportionately impacted by primary open angle glaucoma, degeneration of the optic nerve associated with increased fluid pressure level inside the eye.[3] Recently, researchers identified 1,946 cases of glaucoma from large studies in diverse populations and analyzed patterns of their visual field loss over time as they came in for regular eye exams. The researchers identified 14 archetypes, or consistent patterns of vision loss that have predictive value for disease progression. Glaucoma patients who identified as having African ancestry were six times more likely to have advanced vision loss archetypes compared to non-Hispanic, White patients; Asian patients had twice the risk of early visual field loss, but not advanced vision loss.[4] These predictive models could inform precision medical treatment strategies to improve outcomes and reduce vision loss.

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[3] iovs.arvojournals.org/article.aspx?articleid=2772307#:~:text=African%20Americans%20are%20four%20to,severe%20and%20rapidly%20progressing%20symptoms.&text=This%20population%20is%2015%20times,from%20POAG%20than%20European%20Americans.

[4] www.ophthalmologytimes.com/view/study-black-patients-six-times-more-likely-to-have-advanced-vision-loss-after-glaucoma-diagnosis-than-white-patients

NEI designed clinical trials to address access issues for vulnerable populations. A new trial is testing effectiveness of an implementation program to increase diabetic eye screening rates in rural and urban health systems. Access to telehealth care provides significant opportunities to reduce disease burden in underserved populations through mobile screening and eases transportation burden for those who may not be able to drive or have driving restrictions due to vision impairment. Another recent study demonstrated success of a step treatment for diabetic retinopathy, in which patients start with a lower cost medicine and only receive a more expensive medicine if vision does not improve sufficiently. This protocol offers substantial cost savings.

NEI is proud to play a key role in several trans-NIH efforts to identify and address health disparities using data science, including the All of Us Research Program, an ambitious effort to resource data about biology, environment, and lifestyle from over a million volunteer participants, and the Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Research Diversity (AIM-AHEAD) program, focusing on increasing participation of underrepresented communities in the AI field, ensuring that diversity of researchers can help avert harmful biases in the development of AI and machine learning.

The National Eye Health Education Program (NEHEP) is raising awareness of the importance of early detection and treatment for eye diseases, developing tools for people at risk of vision loss such as the Eye Health, My Health initiative, an effort to raise awareness about healthy vision among African Americans. Educating the public about disease prevention and encouraging vision screening and eye exams can prevent vision loss and reduce disease burden. Part of this education includes developing materials, in multiple languages, to educate the public about the impact of healthy cooking on eye health.

Vision for Improving Accessibility

Individuals with visual impairment have distinct needs. Beyond funding research on vision rehabilitation and assistive devices, NEI supports individuals with vision impairment by advocating for improved accessibility, including incorporating section 508 standards in materials. NEI worked with the NIH Rapid Acceleration of Diagnostics (RADx) program to improve at-home COVID-19 tests, creating an initiative to speed development, validation, and commercialization of home-based tests accessible to visually impaired people. In response to research that people with vision impairment are not getting appropriate rehabilitation support and are facing significant barriers to care, NEHEP recently announced a new program area called Vision Rehabilitation, to make consumers and healthcare providers aware of assistive technologies and other resources to support independence and quality of life. NEI researchers submitted a patent for a rehabilitation training device for individuals with mild visual impairment to complete blindness. This device allows participants to use their fingertips to explore raised-line tactile images such as faces, maps, and even two-dimensional representations of art. Users are trained to incorporate spatial memory and motor control to recreate the image by drawing on the device**.** In another advance, a team used virtual reality headsets to illustrate the role of visual perception in crowd movement. This research could be useful to inform the design of public spaces and assistive technology for visually impaired pedestrians.

Vision for New Therapies

The promise of gene and cell therapies remains a tantalizing target for scientists, with potential to alleviate symptoms in an enormous number of identified diseases. No place is this truer than in diseases and disorders of vision. The ease of access for injecting therapeutics as well as monitoring outcomes, and the unique immune system, has made the eye an ideal target for developing stem- and cell-therapy technologies. In a phase I/IIa clinical trial, researchers improved light sensitivity and vision by delivering opsins, light-sensitive proteins critical to vision, to patients with severe vision loss due to an inherited blinding disease, retinitis pigmentosa. Recently, NEI treated patients with a first-in-human clinical trial to use replacement tissues from patient-derived stem cells. This therapy involves taking cells from a patient's blood and converting them to specific cell types, in this case retinal pigment epithelial (RPE) cells. RPE cells begin to die at the early stages of AMD, setting off a cascade of cell death that leads to blindness. By transplanting RPE cells, scientists hope that this cascade can be delayed or prevented and potentially even reversed to show restoration of vision. By using cells that are derived from the same patient receiving the implant, the risk of the eye rejecting the transplanted cells is reduced. In other cell therapy research, transplantation of stem cells into a mouse model of diabetes improved retinal function and rescued damaged blood vessels. Another team used a dog model of inherited retinal degeneration and showed that transplanted stem cells destined to be photoreceptors were able to form connections with the appropriate targets in the retina. These successful trials of cell therapies in animal models are an exciting foundation for the next generation of clinical trials.

The AMD Integrative Biology Initiative has resourced over 60 different patient-derived cell lines from patients who have genetic markers identified to be high risk for AMD. NEI issued a funding initiative to support collaborative use of these cell lines. Researchers receiving permission to study these cell lines also receive corresponding de-identified clinical trial records and images as well as genetic information, providing a unique opportunity for researchers to design cell-based experiments to understand gene interactions and the underlying mechanisms of AMD. Researchers utilizing these cell lines are currently examining how different types of stress alters proteins in these cells, how these high-risk markers influence interactions between different cells in the retina, and how normal functions of the cells are altered, such as removal of dead cells. Overall, these cells offer an exciting promise to better understand how AMD develops and to identify and test potential therapeutic targets. As an alternative to specialized gene and cell therapies, scientists are also developing therapeutics agnostic to genetics.

Decades of foundational work understanding the genetics and biology of eye diseases provide many options for new drug therapeutics. Retinoids, derivatives of Vitamin A that are safe for use in humans, prevented further vision loss in a mouse model of Usher Syndrome, a rare genetic disorder that causes both deafness and blindness, but for which there are currently no approved drug therapies for vision loss. This advance was made possible by a basic research discovery fifteen years ago identifying of the key mutation involved in a form of Usher Syndrome.

The NEI Anterior Segment Initiative (ASI) tackles relatively common diseases in the front of the eye (ocular surface), including dry eye, ocular pain, and uveitis. Inflammation in this anterior segment can cause severe dry eye and even result in vision loss if left untreated. There is evidence that alterations in the ocular microbiome, microorganisms found on the surface of the

eye, are associated with manifestation of dry eye. Following a state-of-the science workshop, NEI issued a funding initiative to support research characterizing the ocular microbiome of healthy individuals, a field that had not attracted much prior research. A separate funding initiative was issued to support research understanding pathways involved in ocular pain and dry eye disease. NEI has also joined NIH's Accelerating Medicines Partnership (AMP) which recently announced a new program to characterize the cellular interactions and biological pathways of Sjögren's disease, an autoimmune disease affecting an estimated four million people in the U.S., that primarily manifests as dry eye, especially in post-menopausal women. AMP joins NIH with the Foundation for the NIH, Food and Drug Administration (FDA), pharmaceutical companies, and nonprofit organizations to accelerate development of diagnostics and therapies and reduce the time and cost of delivering them.

National Eye Institute

The mission of NEI is to eliminate vision loss and improve quality of life through vision research.

$896,136,000
FY 2023 Comparable Budget Authority

$896,136,000
FY 2024 Budget Request

722 NEI employees

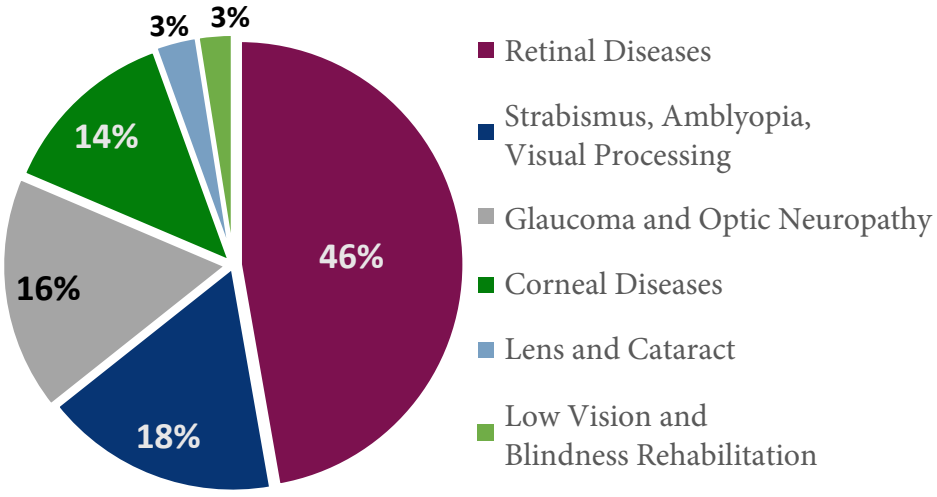
Extramural Research
1,625 Grants Awarded

Intramural Research
23 Laboratories
6 Core Facilities

Highlights of NEI recent progress

- **3D Retinal Organoid Challenge Competition** awarded $1.1 million in prizes for creation of functional mini retinas-in-a-dish (image above) from human stem cells, to accelerate research on therapy development and disease modeling
- A **first-in-human clinical trial** used tissue from patient-derived stem cells to replace retinal pigment epithelium in the eye as to treat dry age-related macular degeneration
- Applying artificial intelligence to data from studies in large, diverse populations, researchers identified **14 distinct patterns of vision loss in glaucoma patients**, which have predictive power for disease progression
- New NEI trial is **testing effectiveness of telehealth** to increase diabetic eye screening rates in rural health systems

Percentage of Extramural Research Funds, FY 2022

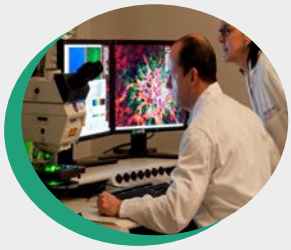


NEI Director:
Michael F. Chiang, M.D.

NEI Strategic Plan 2021-2025: Vision for the Future
Implementation Highlights

Area of Emphasis	*New Research Initiatives*
From Genes to Disease Mechanisms	**Age-related Macular Degeneration (AMD) Integrative Biology Initiative** - Research resource combines deidentified clinical records, genomic data, and stem cell lines derived from AMD patients to probe disease mechanisms
Biology and Neuroscience of Vision	**Cerebral Visual Impairment (CVI) Patient Registry** - Creating new resources for researchers to analyze data, improve diagnosis, and recruit patients for trials involving CVI, a leading cause of blindness in children
Immune System and Eye Health	**Anterior Segment Initiative (ASI)** - Two funding initiatives to study the ocular microbiome and neural pathways of ocular pain and itch, leading causes of morbidity
Regenerative Medicine	**Transplant Immunology** - A new effort within the NEI Audacious Goals Initiative (AGI) to identify barriers to transplanting cell therapies in the eye
Data Science	**Ocular Imaging Standards Workshop** - Develop plans with other federal agencies to improve data sharing by care providers and researchers through adoption of universal standards
Individual Quality of Life	**Increasing Accessibility for People with Low Vision** - Partnership with the NIH-wide Rapid Acceleration of Diagnostics (RADx) program to support development of accessible COVID-19 tests
Public Health and Disparities Research	**Health Equity and Public Health** - Partnership with NIMHD to lead workshops and initiatives to address disparities in cataract, glaucoma, diabetic retinopathy, and refractive error





NIH National Eye Institute

For more information:
nei.nih.gov

Major Changes in the Budget Request

Major changes by budget mechanism and/or budget detail are briefly described below. Note that there may be overlap between budget mechanisms and activity detail and these highlights will not sum to the total change for the FY 2024 President's Budget. The FY 2024 President's Budget for NEI is $896.1 million, the same as the FY 2023 Enacted level.

Research Project Grants (RPGs) (-$4.4 million; total $559.1 million):
NEI will support a total of 1,236 Research Project Grants (RPGs) in FY 2024. Noncompeting RPG awards will decrease by 4 awards and decrease by $1.9 million. Competing RPG awards will decrease by 4 awards and decrease by $2.0 million.

Research & Development Contracts (+$0.5 million; total $48.1 million)
NEI will increase funding for Research & Development Contracts to accommodate inflation.

Intramural Research (+$2.5 million; total $110.4 million):
NEI will increase funding for Intramural Research to accommodate costs of employee salary and benefits increases and increases to centrally funded services.

Research Management and Support (+$1.2 million; total $44.4 million):
NEI will increase funding for Research Management and Support to accommodate costs of employee salary and benefits increases and increases to centrally funded services.

NATIONAL INSTITUTES OF HEALTH

National Eye Institute

Budget Mechanism*

(Dollars in Thousands)

Mechanism	FY 2022 Final		FY 2023 Enacted		FY 2024 President's Budget		FY 2024 +/- FY 2023	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Research Projects:								
Noncompeting	892	$372,944	917	$411,054	913	$409,187	-4	-$1,867
Administrative Supplements	*(85)*	$6,150	*(75)*	$5,400	*(70)*	$5,000	*-(5)*	-$400
Competing:								
Renewal	82	$36,938	74	$32,229	73	$31,702	-1	-$527
New	234	$100,409	202	$87,608	199	$86,176	-3	-$1,432
Supplements	0	$0	0	$0	0	$0	0	$0
Subtotal, Competing	**316**	**$137,347**	**276**	**$119,836**	**272**	**$117,878**	**-4**	**-$1,958**
Subtotal, RPGs	1,208	$516,440	1,193	$536,290	1,185	$532,065	-8	-$4,225
SBIR/STTR	51	$26,718	51	$27,174	51	$27,026	0	-$148
Research Project Grants	1,259	$543,159	1,244	$563,465	1,236	$559,092	-8	-$4,373
Research Centers								
Specialized/Comprehensive	39	$27,381	40	$28,256	40	$28,256	0	$0
Clinical Research	0	$0	0	$0	0	$0	0	$0
Biotechnology	0	$0	0	$0	0	$0	0	$0
Comparative Medicine	0	$144	0	$144	0	$144	0	$0
Research Centers in Minority Institutions	0	$0	0	$0	0	$0	0	$0
Research Centers	**39**	**$27,525**	**40**	**$28,400**	**40**	**$28,400**	**0**	**$0**
Other Research:								
Research Careers	98	$20,661	101	$21,318	101	$21,318	0	$0
Cancer Education	0	$0	0	$0	0	$0	0	$0
Cooperative Clinical Research	35	$39,753	36	$41,016	36	$41,016	0	$0
Biomedical Research Support	0	$0	0	$0	0	$0	0	$0
Minority Biomedical Research Support	0	$0	0	$0	0	$0	0	$0
Other	31	$29,139	31	$30,065	31	$30,065	0	$0
Other Research	**164**	**$89,553**	**168**	**$92,399**	**168**	**$92,399**	**0**	**$0**
Total Research Grants	1,462	$660,236	1,452	$684,263	1,444	$679,890	-8	-$4,373
Ruth L Kirschstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	122	$5,974	125	$6,164	125	$6,287	0	$123
Institutional Awards	116	$6,654	118	$6,865	118	$7,003	0	$137
Total Research Training	**238**	**$12,628**	**243**	**$13,029**	**243**	**$13,290**	**0**	**$261**
Research & Develop. Contracts	36	$45,435	31	$47,674	31	$48,140	0	$466
SBIR/STTR (non-add)	*(0)*	*($273)*	*(0)*	*($273)*	*(0)*	*($273)*	*(0)*	*($0)*
Intramural Research	177	$103,906	182	$107,951	182	$110,437	0	$2,486
Res. Management & Support	109	$41,547	108	$43,218	108	$44,379	0	$1,161
SBIR Admin. (non-add)		*($0)*		*($0)*		*($0)*		*($0)*
Construction		$0		$0		$0		$0
Buildings and Facilities		$0		$0		$0		$0
Total, NEI	**286**	**$863,752**	**290**	**$896,136**	**290**	**$896,136**	**0**	**$0**

* All items in italics and brackets are non-add entries.

NATIONAL EYE INSTITUTE

For carrying out section 301 and title IV of the PHS Act with respect to eye diseases and visual disorders, [$896,549,000] *$896,136,000.*

NATIONAL INSTITUTES OF HEALTH
National Eye Institute

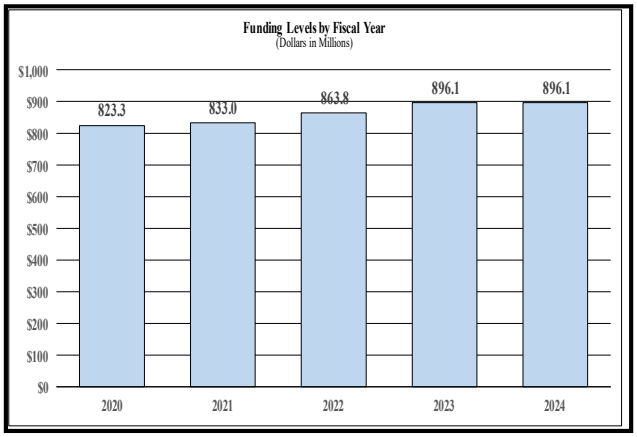
Summary of Changes
(Dollars in Thousands)

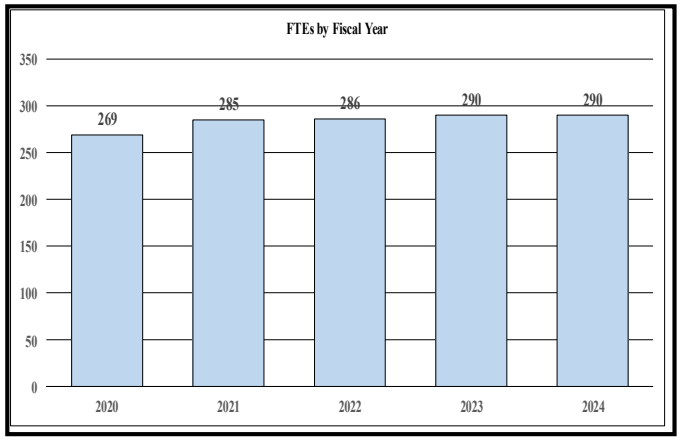
FY 2023 Enacted	$896,13
FY 2024 President's Budget	$896,13
Net change	$

CHANGES	FY 2023 Enacted FTEs	FY 2023 Enacted Budget Authority	FY 2024 President's Budget FTEs	FY 2024 President's Budget Budget Authority	Built-In Change from FY 2023 Enacted FTEs	Built-In Change from FY 2023 Enacted Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of FY 2023 pay and benefits increase		$38,787		$40,768		$515
b. FY 2024 pay and benefits increase		$38,787		$40,768		$1,546
c. Paid days adjustment		$38,787		$40,768		$149
d. Differences attributable to change in FTE		$38,787		$40,768		$0
e. Payment for centrally furnished services		$16,406		$16,669		$263
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		$52,757		$52,999		$1,282
Subtotal						$3,610
2. Research Management and Support:						
a. Annualization of FY 2023 pay and benefits increase		$20,483		$21,528		$272
b. FY 2024 pay and benefits increase		$20,483		$21,528		$815
c. Paid days adjustment		$20,483		$21,528		$79
d. Differences attributable to change in FTE		$20,483		$21,528		$0
e. Payment for centrally furnished services		$3,297		$3,350		$53
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		$19,438		$19,501		$467
Subtotal						$1,608
Subtotal, Built-in						$5,219

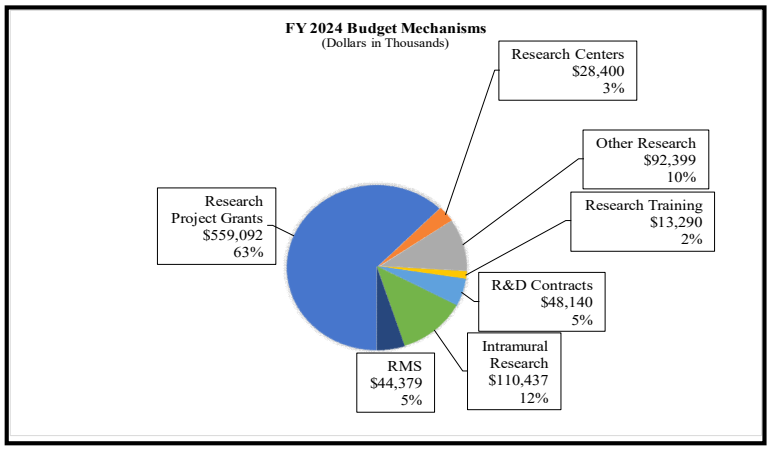
CHANGES	FY 2023 Enacted No	FY 2023 Enacted Amount	FY 2024 President's Budget No.	FY 2024 President's Budget Amount	Program Change from FY 2023 Enacted No.	Program Change from FY 2023 Enacted Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	917	$416,454	913	$414,187	-4	-$2,267
b. Competing	276	$119,836	272	$117,878	-4	-$1,958
c. SBIR/STTR	51	$27,174	51	$27,026	0	-$148
Subtotal, RPGs	1,244	$563,465	1,236	$559,092	-8	-$4,373
2. Research Centers	40	$28,400	40	$28,400	0	$0
3. Other Research	168	$92,399	168	$92,399	0	$0
4. Research Training	243	$13,029	243	$13,290	0	$261
5. Research and development contracts	31	$47,674	31	$48,140	0	$466
Subtotal, Extramural		$744,967		$741,320		-$3,646
6. Intramural Research	182	$107,951	182	$110,437	0	-$1,125
7. Research Management and Support	108	$43,218	108	$44,379	0	-$448
8. Construction		$0		$0		$0
9. Buildings and Facilities		$0		$0		$0
Subtotal, Program	290	$896,136	290	$896,136	0	-$5,219
Total built-in and program changes						$0

History of Budget Authority and FTEs:

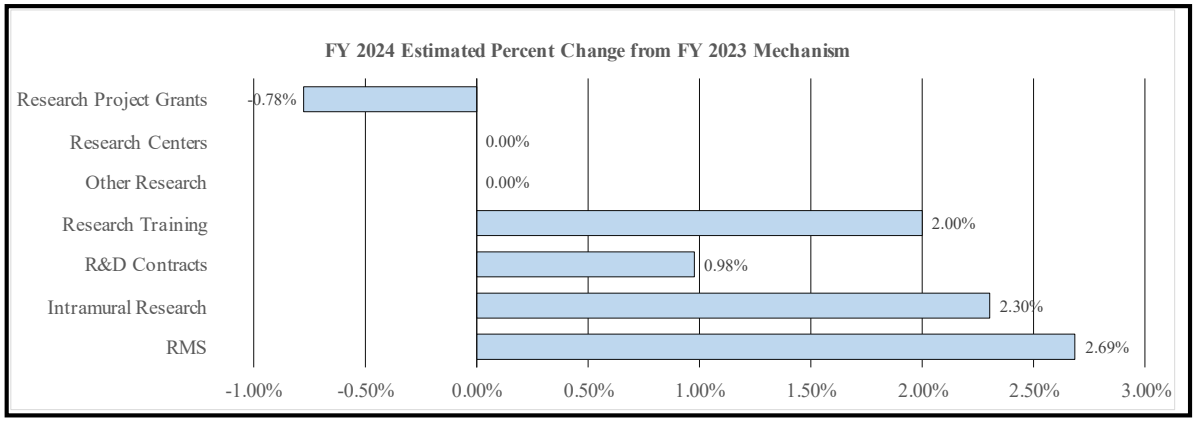




Distribution by Mechanism:



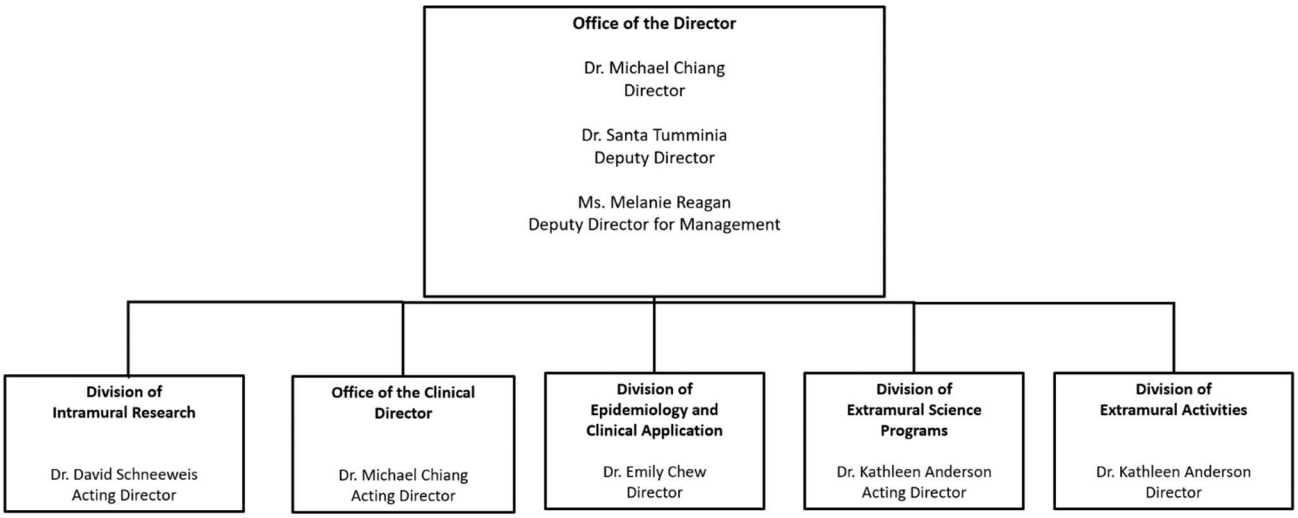
Change by Selected Mechanisms:



NATIONAL INSTITUTES OF HEALTH

National Eye Institute

Organizational Chart



NATIONAL INSTITUTES OF HEALTH
National Eye Institute

Budget Authority by Activity *
(Dollars in Thousands)

	FY 2022 Final		FY 2023 Enacted		FY 2024 President's Budget		FY 2024 +/- FY 2023 Enacted	
Extramural Research	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**
Detail								
Retinal Diseases Research		$350,302		$363,297		$361,519		-$1,778
Corneal Diseases, Cataract, and Glaucoma Research		$228,963		$237,471		$236,308		-$1,162
Sensorimotor Disorders, Visual Processing, and Rehabilitation Research		$139,033		$144,199		$143,493		-$706
Subtotal, Extramural		**$718,299**		**$744,967**		**$741,320**		**-$3,646**
Intramural Research	**177**	**$103,906**	**182**	**$107,951**	**182**	**$110,437**	**0**	**$2,486**
Research Management & Support	**109**	**$41,547**	**108**	**$43,218**	**108**	**$44,379**	**0**	**$1,161**
TOTAL	**286**	**$863,752**	**290**	**$896,136**	**290**	**$896,136**	**0**	**$0**

* Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

National Eye Institute

Authorizing Legislation: Section 301 and Title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	FY 2022 Final	FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
BA	863,752,000	896,136,000	896,136,000	0
FTE	286	290	290	0

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Overall Budget Policy: The FY 2024 President's Budget request is $896.1 million, unchanged from the FY 2023 Enacted level.

Program Descriptions

Retinal Diseases Research: The retina is the light-sensitive neural tissue that lines the inside of the eye and sends visual messages through the optic nerve to the brain. Damage to the retina due to diseases such as macular degeneration and diabetic retinopathy is a leading cause of blindness and visual impairment in the United States. The goals of this program are to increase the understanding of disease mechanisms that cause vision loss and to develop improved methods of prevention, diagnosis, and treatment. To meet these goals, NEI supports research in cell biology, physiology, neuroscience, and immunology related to the retina. Major areas addressed within the Retina Program include:

- **Age-related Macular Degeneration.** A leading cause of vision loss, AMD is a disease that blurs the sharp, central vision required for reading, driving, and face recognition. There are two forms of advanced AMD: geographic atrophy ("dry") AMD, a breakdown of light sensing photoreceptor neurons; and neovascular ("wet") AMD, an abnormal growth of blood vessels underneath the retina.
- **Retinopathy.** Diabetic retinopathy is a complication of diabetes mellitus in which abnormal blood vessels grow on the surface of the retina and may swell and leak fluid. Retinopathy of Prematurity (ROP) is a potentially blinding disorder that affects premature infants with very low birthweight.
- **Retinal monogenic disorders.** Single genetic mutations cause some retinal degenerative diseases, including retinitis pigmentosa, Usher syndrome, and ocular albinism.
- **Uveitis.** Inflammation can produce swelling and destroy eye tissue, sometimes leading to severe vision loss.

Accomplishments:

- Retinal prosthetics offer exciting potential to provide vision for patients with advanced degenerative diseases, such as retinitis pigmentosa and AMD, as the prosthesis technology is now able to translate visual images into electrical signals, the language of the brain. Scientists have invented a device that can restore functional vision to AMD patients, even if critical light-sensitive cells have died. This device, an implanted chip paired with specially designed glasses that transmit images to the chip, allows the brain to integrate healthy vision from the periphery of the retina with the prosthetic vision in the center of the retina so the patient has both near and far functional vision.
- Researchers have found a common link between a debilitating autoimmune disorder, lupus, and AMD. A piece of genetic material, called a Short Interspersed Nuclear Elements (SINE) RNA, is elevated in both diseases and is a potential culprit in the overactive immune response seen in both diseases. Researchers were able to target the SINE RNA and its pathway in an animal model and prevent retinal degeneration. This advance provides a promising target to slowing the immune mechanisms involved in AMD, a critical step in slowing disease progression.
- Imaging blood flow in the retina not only helps researchers assess eye health and monitor for diseases such as diabetic retinopathy, but may be used as a proxy to understanding blood flow in the brain. Researchers developed a new imaging tool that provides high resolution videos of vascular blood flow that will increase the ability to detect and monitor eye diseases including diabetic retinopathy and glaucoma, and also potentially monitor for conditions like stroke, where blood flow in the brain is interrupted causing loss of oxygen and neuron death.

Program Portrait: Retinal Organoids – New disease-in-a-dish tools for drug development

Scientists working on cures and treatments for AMD and other blinding diseases face a major hurdle in that ocular tissue is not readily available to study disease processes and test new therapies. In 2011, scientists were first able to demonstrate generation of a 3D optic cup (the beginning stage of the retina) with two distinct layers of cells, developed from stem cells. Ideally, scientists could use these organoids as a readily available, physiologically competent model system to study eye diseases and treatments. A major challenge, however, has been the ability to recapitulate the complexity of the human retina. Human retinas have five different neuronal cell types as well as non-neuronal cells interacting in a multitude of ways to create parallel pathways that transmit different elements of vision. To incentivize researchers to develop methods of growing retinal organoids that represent the complexity, structure, and function of the human retina, NEI launched the 3D Retinal Organoid Challenge (3D-ROC) in 2017 with $1.1 million in prize funds available over three phases. The challenge partnered with industry to provide resources and support to overcome technical hurdles. Inventors retain intellectual property of their organoids and are encouraged to develop them commercially. Winners of this prize challenge, completed in 2022,[1] showed major advancements in the complexity and reproducibility of these organoids, demonstrating their ability to be used to model diseases such as AMD, to screen therapeutics, and to test gene-therapies. Retinal organoids are now being used to accelerate vision research. Recently, NEI researchers were able to identify how a mutation in a specific gene led to a defect in photoreceptors, develop a gene therapy targeting the defect, and demonstrate reversal of the defect, all by using retinal organoids.

Budget Policy: The FY 2024 Budget request for this program area is $361.5 million, a decrease of $1.8 million or 0.5 percent compared with the FY 2023 Enacted level.

Corneal Diseases, Cataract, and Glaucoma Research: Corneal diseases, cataracts, and glaucoma prompt more visits to ophthalmologists a year than any other vision disorder. NEI supports research to address these conditions that originate in the front of the eye.

- **Corneal disease.** Corneal injuries, infections, and diseases can be blinding, extremely painful, and require immediate medical attention. The ocular surface is the front line against environmental insults, such as viruses (herpes simplex, herpes zoster, bacteria (causing trachoma), fungus (sometimes associated with contact lens wear), and ocular inflammation (uveitis). These conditions can be serious and lead to permanent vision loss. NEI's corneal research encompasses ocular injuries sustained from sports and other recreational activities, from workplace accidents, and from eye trauma associated with falls and motor vehicle accidents.
- **Cataract.** A clouding of the lens in the eye that affects vision, cataracts are the leading cause of blindness worldwide. NEI researchers investigate strategies to prevent cataract formation and progression and to understand the physiological basis of how the lens in the healthy eye remains transparent for much of the lifespan.
- **Glaucoma.** Glaucoma refers to a group of blinding diseases that result from damage to the optic nerve, the bundle of fibers that transmit signals from the eyes to the brain. Because there are no early symptoms, an estimated half of people with glaucoma don't know they have it. Over time individuals with glaucoma slowly lose side (peripheral) vision. Those who are over age 60, who are Black or Hispanic, or who have a family history of glaucoma have a much higher disease risk. Current therapies focus on reducing excessive fluid pressure in the eye, which causes nerve damage in the most common form of glaucoma.

Accomplishments

- In a recent study, researchers discovered that the herpes virus is suppressed by optineurin (OPTN), a protein linked to glaucoma. They demonstrated that OPTN mitigates herpes infection by signaling other proteins to degrade the virus. Deficiency in OPTN leads to a more severe disease course for patients with herpes infection, including inflammation in the brain and even death, demonstrating the necessity of OPTN for appropriate immune response.

- Many vision-related diseases, including glaucoma and retinal ischemia, result in injury and death to a population of neurons in the retina called retinal ganglion cells (RGCs) which leads to blindness. Researchers recently identified that damage to RGCs, no matter the initial cause, decreases activity of a calcium signaling protein, CaMKII. By increasing expression of CaMKII using gene therapy, they demonstrated protection of RGCs from further injury and preserved visual function. This advance offers exciting promise for the use of CaMKII as a universal therapeutic target for RGC protection.
- Cataracts are a leading cause of blindness worldwide, and while there are highly effective interventions to correct the condition, developing pharmaceutical approaches to reverse cataracts is an important option for areas where cataract surgeries are not readily available. Researchers have identified a potential compound called oxysterol to treat cataracts that does not involve surgery. Treatment of oxysterol through an eye drop demonstrated a reduction of lens opacity in a mouse model.

Program Portrait: Senescence – Fresh eyes on age-old questions

Starting with a fertilized egg cell developing into an embryo, new cells are created through division, in which a single cell divides to create two daughter cells, which in turn enter their own cell cycles. Even in adults, cell division is continually needed to replace dying cells and repair damage. However, during aging, cell division becomes increasingly prone to errors, and cells may become cancerous or escape the cell cycle in other ways. An accumulation of cells that have entered replicative senescence – a dysfunctional state in which damaged cells stop dividing but do not die – is now understood to contribute to various diseases of aging. Senescence factors in many age-related eye diseases including AMD, diabetic retinopathy, glaucoma, cataract, and dry eye disease. Researchers have identified molecules that selectively kill senescent cells, senolytics, with the hope that they can be used therapeutically. Recent Phase II clinical trials of a senolytic drug demonstrated an ability to improve vision in patients with diabetic macular edema, one of the first proofs-of-concept for this new paradigm of therapy. These promising results support senolytics as a new method of treatment for diabetic retinopathy, complementing the current therapeutics which target a protein, VEGF, responsible for leaky, abnormal blood vessel growth. Clinical trials using the senolytic for AMD are also underway.

The NEI strategic plan proposes incorporating age as a biological variable when developing new models of immune-mediated and age-related disease. Recent NEI-funded projects have developed a variety of models of aging that can be used to study senescence. Senescence research applied to eye disease is early stage, but NEI can leverage multisystem collaborations such as the NIH Common Fund Cellular Senescence Initiative to accelerate this work. This research will help increase understanding of senescence, expand the existing senolytic pipeline, and support development of novel therapeutics to tackle age-related eye disease.

Budget Policy: The FY 2024 Budget request for this program area is $236.3 million, a decrease of $1.2 million or 0.5 percent compared with the FY Enacted 2023 level.

Sensorimotor Disorders, Visual Processing, and Rehabilitation Research: Vision is the dominant sensory system in humans, occupying over one third of the brain neocortex. NEI funds basic and applied research on the brain as it relates to the visual system and perception, and research on rehabilitation for individuals with low vision. NEI neuroscientists have made remarkable progress in understanding what goes on in the face-processing areas in the brain.

- **Sensorimotor disorders and visual processing research.** Strabismus (misalignment of the eyes) and amblyopia (commonly known as "lazy eye") are common disorders that develop during childhood and, left untreated, are a major cause of irreversible vision loss in children. Cerebral (Cortical) Visual Impairment is a brain-based visual impairment

where the eyes perform normally but neurological problems disrupt higher order visual processing. Program goals center on gaining a better understanding of the neuromuscular control of gaze and the development of the visual system in babies and young children at high risk for these disorders. Neuroscientists working in vision research seek to understand how the brain processes the visual information that floods our eyes, how neural activity is related to visual perception, and how the visual system interacts with cognitive and motor systems. Additional research is directed at trying to open the so-called "critical period" and thereby allow some recovery of visual function and stereopsis in adult amblyopia subjects.

- **Refractive errors.** Refractive errors, such as nearsightedness (myopia), farsightedness, and astigmatism, are, once diagnosed, commonly correctable with eyeglasses or contact lenses, but these conditions often worsen and therefore remain a costly, recurring economic and personal burden to many in the United States. The steadily growing prevalence of these conditions is a public health concern. People with complications, such as severe nearsightedness, can also be at risk of vision loss from glaucoma or retinal detachment. The major goals of this program are to discover the biochemical pathways that govern eye growth and to uncover the risk factors associated with refractive errors with the goal of prevention of disease onset or progression.
- **Rehabilitation research.** Some causes of blindness and visual impairment are not treatable at this point. Low vision is the term used to describe chronic visual conditions whose visual impairment is not correctable by eyeglasses or contact lenses. NEI supports rehabilitation research to improve the quality of life for people with visual impairments by helping them maximize the use of remaining vision and by developing improved assistive and adaptive aids and devising new strategies proven to assist those without useful vision.

Accomplishments:

- Normal visual function requires light to activate RGCs that send visual information to the brain. However, portions of the visual system develop before light input is available. Spontaneous activity, where neurons are firing in the absence of light, has been shown to shape which parts of the brain receive information from the retina. Researchers have recently helped uncover a new function of these spontaneous waves, demonstrating that the waves flow in the same pattern that occurs when an animal moves through an environment, priming higher order visual centers in the brain for later visual input. These findings suggest that there is an inherent organization and program in the visual system for real-world stimuli.
- The dogma of visual processing dictates that once visual information is received in the primary visual cortex, the prefrontal cortex dictates how this visual information is processed in other areas of the brain including temporal and parietal cortex. Recent work using a newly developed technique that measures brain activity in response to electrical stimulation modifies this longstanding dogma. Signals from the temporal and parietal cortex merge and integrate visual information with the prefrontal cortex concurrently, rather than having the prefrontal cortex exerting commands.

Budget Policy: The FY 2024 Budget request for this program area is $143.5 million, a decrease of $0.7 million or 0.5 percent compared with the FY 2023 Enacted level.

Intramural Research: NEI basic and clinical studies conducted on the NIH campus are focused on the cause, prevention, and treatment of eye diseases and vision disorders; cellular and molecular mechanisms of eye development, infectious diseases of the eye; inflammatory and immunological responses; mechanisms of visual perception by the brain; and sensory control of movements.

Accomplishments:

- NEI scientists identified a protein, PEDF, that may play a critical role in the aging process within the retina; deleting PEDF in a mouse model showed accelerated signs of aging. Understanding the components of the natural aging process provides therapeutic targets to researchers interested in preventing or treating diseases of aging, such as AMD.
- NEI researchers have discovered a new eye disease caused by mutations in a gene called *TIMP3*. This mutation causes degeneration of a population of cells in the retina, a process called macular dystrophy, in adulthood. Discovering new disease mechanisms, such as this mutation in *TIMP3,* helps ensure that patients receive the correct diagnosis and appropriate care.
- Ten-year follow up of the landmark Age-Related Eye Disease Studies (AREDS2) confirmed the long-term benefits of nutritional supplements for slowing AMD progression. The AREDS2 formulation improved outcomes by 20 percent compared to the original formula of supplements from an earlier AREDS trial. This advance demonstrates that simple life changes can play a major role in preventative medicine.

Budget Policy: The FY 2024 Budget request for this program area is $110.4 million, an increase of $2.5 million or 2.3 percent compared with the FY 2023 Enacted level.

Research Management and Support (RMS): RMS is a budget category that supports leadership and administrative personnel who supply direction for the Institute, provide essential services, manage research programs, and monitor budgets. This line item includes functions and activities such as management of human resource support, training, travel, purchasing, facilities, budget, planning and oversight, information technology, and extramural grant awards. NEI currently oversees more than 1,700 grants and contracts, including research project grants, core center grants, research career development awards, cooperative clinical research agreements, and research and development contracts.

Accomplishments:

- NEI firmly believes in the importance of recruiting and maintaining a talented and diverse workforce that will strengthen performance and productivity in support of the NEI mission of eliminating vision loss and improving quality of life through vision research for all. The NEI Diversity, Equity, Inclusion, and Accessibility (DEIA) Council released a Strategic Plan in October 2022, the culmination of a trans-NEI initiative to gather ideas and perspectives from employees from different divisions, backgrounds, and experiences to delineate objectives and expected outcomes for NEI DEIA efforts.
- In 2022, NEI, along with the FDA and the Office of the National Coordinator for Health Information Technology, co-hosted a workshop that brought together industry, policy-makers, researchers, and clinical care providers to discuss current barriers to

interoperability of ocular imaging devices in their respective fields. The goal of the workshop was to develop a plan to improve vision research and clinical care through ocular imaging standards adoption. Uniform standards will allow various medical devices, imaging tools, and other medical information to communicate in a shared language, improving quality of care for patients and improving access to data for researchers. The workshop provided leadership to delineate the state-of-the-science and improve interoperability among ocular imaging devices to improve biomedical research and patient care.

Budget Policy: The FY 2024 Budget request for this program area is $44.4 million, an increase of $1.2 million or 2.7 percent compared with the FY 2023 Enacted level.

NATIONAL INSTITUTES OF HEALTH
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Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2015	$675,168,000			$684,191,000
Rescission				$0
2016	$695,154,000	$698,108,000	$709,549,000	$715,903,000
Rescission				$0
2017 [1]	$707,998,000	$735,576,000	$740,826,000	$732,618,000
Rescission				$0
2018	$549,847,000	$743,881,000	$758,552,000	$772,317,000
Rescission				$0
2019	$711,015,000	$781,540,000	$796,955,000	$796,536,000
Rescission				$0
2020	$685,644,000	$835,465,000	$840,163,000	$824,090,000
Rescission				$0
2021	$749,003,000	$831,177,000	$850,135,000	$835,714,000
Rescission				$0
2022	$858,535,000	$877,129,000	$857,868,000	$863,918,000
Rescission				$0
2023	$853,355,000	$891,186,000	$890,700,000	$896,549,000
Rescission				$0
2024	$896,136,000			

[1] Budget Estimate to Congress includes mandatory financing.

NATIONAL INSTITUTES OF HEALTH
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Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2023 Amount Authorized	FY 2023 Enacted	2024 Amount Authorized	FY 2024 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$896,136,000	Indefinite	$896,136,000
National Eye Institute	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$896,136,000		$896,136,000

NATIONAL INSTITUTES OF HEALTH

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Amounts Available for Obligation [1]

(Dollars in Thousands)

Source of Funding	FY 2022 Final	FY 2023 Enacted	FY 2024 President's Budget
Appropriation	$863,918	$896,549	$896,136
Secretary's Transfer	$0	$0	$0
OAR HIV/AIDS Transfers	-$166	-$413	$0
Subtotal, adjusted budget authority	$863,752	$896,136	$896,136
Unobligated balance, start of year	$0	$0	$0
Unobligated balance, end of year (carryover)	$0	$0	$0
Subtotal, adjusted budget authority	**$863,752**	**$896,136**	**$896,136**
Unobligated balance lapsing	$0	$0	$0
Total obligations	$863,752	$896,136	$896,136

[1] Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2022 - $18,833 FY 2023 - $25,100 FY 2024 - $25,100

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Budget Authority by Object Class[1]
(Dollars in Thousands)

		FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
Total compensable workyears:				
	Full-time equivalent	290	290	0
	Full-time equivalent of overtime and holiday hours	0	0	0
	Average ES salary	$0	$0	$0
	Average GM/GS grade	12.6	12.6	0.0
	Average GM/GS salary	$127	$130	$3
	Average salary, Commissioned Corps (42 U.S.C. 207)	$109	$112	$3
	Average salary of ungraded positions	$156	$160	$4
	OBJECT CLASSES	**FY 2023 Enacted**	**FY 2024 President's Budget**	**FY 2024 +/- FY 202**
	Personnel Compensation			
11.1	Full-Time Permanent	$23,885	$25,131	$1,24
11.3	Other Than Full-Time Permanent	$13,529	$14,217	$68
11.5	Other Personnel Compensation	$1,876	$1,961	$8
11.7	Military Personnel	$171	$179	$
11.8	Special Personnel Services Payments	$5,001	$5,274	$27
11.9	**Subtotal Personnel Compensation**	**$44,461**	**$46,762**	**$2,30**
12.1	Civilian Personnel Benefits	$14,800	$15,525	$72
12.2	Military Personnel Benefits	$9	$10	$
13.0	Benefits to Former Personnel	$0	$0	$
	Subtotal Pay Costs	**$59,271**	**$62,296**	**$3,02**
21.0	Travel & Transportation of Persons	$534	$526	-$
22.0	Transportation of Things	$112	$110	-$
23.1	Rental Payments to GSA	$47	$48	$
23.2	Rental Payments to Others	$10	$8	-$
23.3	Communications, Utilities & Misc. Charges	$99	$79	-$2
24.0	Printing & Reproduction	$45	$44	-$
25.1	Consulting Services	$21,320	$21,616	$29
25.2	Other Services	$36,666	$36,877	$21
25.3	Purchase of Goods and Services from Government Accounts	$60,769	$61,049	$28
25.4	Operation & Maintenance of Facilities	$213	$215	$
25.5	R&D Contracts	$4,673	$4,785	$11
25.6	Medical Care	$1,081	$1,115	$3
25.7	Operation & Maintenance of Equipment	$3,668	$3,698	$3
25.8	Subsistence & Support of Persons	$0	$0	$
25.0	**Subtotal Other Contractual Services**	**$128,389**	**$129,355**	**$96**
26.0	Supplies & Materials	$5,203	$5,278	$7
31.0	Equipment	$5,079	$5,156	$7
32.0	Land and Structures	$46	$47	$
33.0	Investments & Loans	$0	$0	$
41.0	Grants, Subsidies & Contributions	$697,292	$693,180	-$4,11
42.0	Insurance Claims & Indemnities	$0	$0	$
43.0	Interest & Dividends	$9	$9	$
44.0	Refunds	$0	$0	$
	Subtotal Non-Pay Costs	**$836,865**	**$833,840**	**-$3,02**
	Total Budget Authority by Object Class	**$896,136**	**$896,136**	**$**

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

NATIONAL INSTITUTES OF HEALTH

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Salaries and Expenses

(Dollars in Thousands)

Object Classes	FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
Personnel Compensation			
Full-Time Permanent (11.1)	$23,885	$25,131	$1,246
Other Than Full-Time Permanent (11.3)	$13,529	$14,217	$688
Other Personnel Compensation (11.5)	$1,876	$1,961	$85
Military Personnel (11.7)	$171	$179	$8
Special Personnel Services Payments (11.8)	$5,001	$5,274	$273
Subtotal, Personnel Compensation (11.9)	**$44,461**	**$46,762**	**$2,300**
Civilian Personnel Benefits (12.1)	$14,800	$15,525	$725
Military Personnel Benefits (12.2)	$9	$10	$1
Benefits to Former Personnel (13.0)	$0	$0	$0
Subtotal Pay Costs	**$59,271**	**$62,296**	**$3,026**
Travel & Transportation of Persons (21.0)	$534	$526	-$8
Transportation of Things (22.0)	$112	$110	-$2
Rental Payments to Others (23.2)	$10	$8	-$2
Communications, Utilities & Misc. Charges (23.3)	$99	$79	-$20
Printing & Reproduction (24.0)	$45	$44	-$1
Other Contractual Services			
Consultant Services (25.1)	$21,320	$21,616	$295
Other Services (25.2)	$36,666	$36,877	$211
Purchase of Goods and Services from Government Accounts (25.3)	$38,238	$38,310	$72
Operation & Maintenance of Facilities (25.4)	$213	$215	$2
Operation & Maintenance of Equipment (25.7)	$3,668	$3,698	$30
Subsistence & Support of Persons (25.8)	$0	$0	$0
Subtotal Other Contractual Services	**$100,104**	**$100,715**	**$611**
Supplies & Materials (26.0)	$5,203	$5,278	$75
Subtotal Non-Pay Costs	**$106,107**	**$106,759**	**$652**
Total Administrative Costs	**$165,378**	**$169,056**	**$3,678**

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Detail of Full-Time Equivalent Employment (FTE)

Office	FY 2022 Final			FY 2023 Enacted			FY 2024 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Activities									
Direct:	20	-	20	20	-	20	20	-	20
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	20	-	20	20	-	20	20	-	20
Division of Intramural Research									
Direct:	134	-	134	138	-	138	138	-	138
Reimbursable:	3	-	3	3	-	3	3	-	3
Total:	137	-	137	141	-	141	141	-	141
Office of the Director									
Direct:	96	2	98	96	2	98	96	2	98
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	96	2	98	96	2	98	96	2	98
Division of Epidemiology and Clinical Applications									
Direct:	10	-	10	9	-	9	9	-	9
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	10	-	10	9	-	9	9	-	9
Division of Extramural Science									
Direct:	21	-	21	22	-	22	22	-	22
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	21	-	21	22	-	22	22	-	22
Total	284	2	286	288	2	290	288	2	290
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0

FISCAL YEAR	Average GS Grade
2020	12.4
2021	12.5
2022	12.6
2023	12.6
2024	12.6

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Detail of Positions[1]

GRADE	FY 2022 Final	FY 2023 Enacted	FY 2024 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	$0	$0	$0
General Schedule			
GM/GS-15	34	34	34
GM/GS-14	37	37	37
GM/GS-13	52	52	52
GS-12	26	26	26
GS-11	25	25	25
GS-10	3	3	3
GS-9	11	11	11
GS-8	1	1	1
GS-7	2	2	2
GS-6	1	1	1
GS-5	2	2	2
GS-4	1	1	1
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	195	195	195
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	0	0	0
Senior Grade	1	1	1
Full Grade	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	2	2	2
Ungraded	81	93	93
Total permanent positions	0	0	0
Total positions, end of year	278	290	290
Total full-time equivalent (FTE) employment, end of year	286	290	290
Average ES salary	$0	$0	$0
Average GM/GS grade	12.6	12.6	12.6
Average GM/GS salary	$123,518	$126,819	$130,243

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.